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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,681	03/17/2004	Naoto Okada	03500.017973	1879

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EXAMINER
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DIAMOND, ALAN D

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/801,681	<b>Applicant(s)</b> OKADA ET AL.	
	<b>Examiner</b> Alan Diamond	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>07062004</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figures 8 and 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Priority***

2. The Examiner acknowledges applicant's letter dated July 6, 2004 indicating that the Japanese priority document has been filed. For some reason, it appears that said Japanese foreign priority was considered an artifact and was not scanned into the IFW. The Examiner has contacted the IWF unit and is attempting to resolve this situation. When applicant responds to the instant Office action, and if the Japanese foreign priority document is still not scanned in, the Examiner requests that applicant provide a post card receipt and a photocopy of the certified (ribboned) Japanese document.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-8 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Okada (U.S. Patent Application Publication 2003/0217769). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Okada prepares the instant stacked photovoltaic cell, and it is the Examiner's position that the selectively reflective layer used in the Okada's examples at pages 4 to 7 inherently have the instant sheet resistance (see also Okada's claims 1 to 6 for the stacked structure). Since Okada teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, the instant sheet resistance would obviously have been present once Okada's stacked photovoltaic element with selectively reflective layer has been provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the

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providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

6. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wiesmann (U.S. Patent 4,536,607).

Wiesmann prepares a stacked photovoltaic element comprising a first photovoltaic element A and a second photovoltaic element B stacked in this order from the light incidence side, and a 2000 Angstrom layer comprising indium tin oxide (ITO) layer (18) between the photovoltaic elements A and B (see col. 5, line 67 through col. 6, line 67; col. 8, lines 7-41; and Figure 1). In another example in Figure 2, the layer (28) between the photovoltaic elements A and B is a 500 Angstrom indium oxide layer (see col. 8, lines 59-61). Alternatively, the layer (18) can be a metal layer of 100 Angstroms or less made from a metal such as platinum, nickel, chromium, etc (see col. 6, lines 39-49). Said layer (18) or (28), which is an electrically conductive layer, connects said first and second photovoltaic elements A and B in series (see Figures 1 and 2; and col. 6, lines 39-40; and col. 7, lines 21-22). It is the Examiner's position that said 2000 Angstrom layer comprising indium tin oxide (ITO) or said 500 Angstrom indium oxide layer reads on the instant selectively reflective layer and inherently has a sheet resistance as here claimed.

With respect to claim 6, the photovoltaic element A has a pin junction, wherein the i-type layer (16) is a-Si formed by the decomposition of  $\text{SiH}_4$ , and thus, it is the Examiner's position is a-Si:H (see col. 8, lines 7-23).

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Since Wiesmann teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, instant sheet resistance would obviously have been present once Wiesmann's stacked photovoltaic element has been provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

7. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 63-77167, herein referred to as JP '167.

JP '167 teaches a stacked photovoltaic element comprising a first pin junction photovoltaic element (10), second pin junction photovoltaic element (20), and a 600 Angstrom transparent conductive ITO layer (7) formed therebetween (see the attached English abstract; and the entire JP '167 document, in particular Figure 1). Said layer (7) electrically connects said photovoltaic elements (41) and (42) in series, as seen in Figure 1. The ITO layer (7), which it is the Examiner's position reads on the instant selectively reflective layer, reflects short wavelength light more than long wavelength light, as per instant claim 3 (see the attached English abstract; and the entire JP '167 document). It is the Examiner's position that said ITO layer (7) inherently has the instant sheet resistance.

With respect to claim 6, JP '167's a-Si i-type layer (3) is made using silane, and thus, it is the Examiner's position that it is hydrogenated, i.e., a-Si:H (see pages 2-4 of JP '167).

Since JP '167 teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, the presently claimed sheet resistance would obviously have been present once JP '167's stacked photovoltaic element has been provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

8. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 61-1062, herein referred to as JP '062.

JP '062 prepares a stacked photovoltaic element comprising a first photovoltaic element Cb and a second photovoltaic element Ca stacked in this order from the light incidence side, and a 100 Angstrom tin oxide layer (14a) between the photovoltaic elements Cb and Ca, connecting the photovoltaic elements Cb and Ca electrically in series (see the attached English abstract; Figure 3; and page 3 of JP '062). It is the Examiner's position that said 100 Angstrom tin oxide layer (14a) reads on the instant selectively reflective layer, and inherently has a sheet resistance as here claimed.

With respect to claim 6, the photovoltaic element Cb has a pin junction, wherein the i-type layer (12b) is a-Si formed by the decomposition of SiH<sub>4</sub>, and thus, it is the Examiner's position is a-Si:H (see the left and right lower column on page 3 of JP '062).

With respect to claim 8, the photovoltaic element Ca forms a pn junction made from monocrystalline silicon, i.e., from a silicon wafer substrate (see the attached English abstract; and the entire JP '062 document).

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Since JP '062 teaches the limitations of the instant claims, the reference is deemed to be anticipatory.

In addition, the presently claimed sheet resistance would obviously have been present once JP '062's stacked photovoltaic element has been provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

***Claim Rejections - 35 USC § 103***

9. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 63-77167, herein referred to as JP '167, in view of Yamazaki (U.S. Patent 4,971,919).

JP '167 teaches a stacked photovoltaic element comprising a first pin junction photovoltaic element (10), second pin junction photovoltaic element (20), and a 600 Angstrom transparent conductive ITO layer (7) formed therebetween (see the attached English abstract; and the entire JP '167 document, in particular Figure 1). Said layer (7) electrically connects said photovoltaic elements (41) and (42) in series, as seen in Figure 1. The ITO layer (7), which it is the Examiner's position reads on the instant selectively reflective layer, reflects short wavelength light more than long wavelength light, as per instant claim 3 (see the attached English abstract; and the entire JP '167 document). It is the Examiner's position that said ITO layer (7) inherently has the instant sheet resistance.

With respect to claim 6, JP '167's a-Si i-type layer (3) is made using silane, and thus, it is the Examiner's position that it is hydrogenated, i.e., a-Si:H (see pages 2-4 of JP '167).



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JP '167 teaches the limitations of the instant claims, other than the difference which is discussed below.

With respect to claims 7 and 8, JP '167 teaches that the pin junction for its second photovoltaic element comprises amorphous silicon p-type, i-type and n-type layers (see the entire document). JP '167 does not specifically teach the use of i-type microcrystalline silicon (as in claim 7) or the use of n-type and p-type monocrystalline or polycrystalline silicon (as in claim 8). However, the use of i-type microcrystalline silicon, and the use of n-type and p-type polycrystalline silicon are conventional in the art, as shown by Yamazaki (see col. 6, lines 47-51 and 62-66; and col. 7, lines 16-21). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have prepared JP '167's stacked photovoltaic element such that the pin junction for its second photovoltaic elements comprises i-type microcrystalline silicon or n-type and p-type polycrystalline silicon because the use of i-type microcrystalline silicon and the use of n-type and p-type polycrystalline silicon are conventional in the art, as shown by Yamazaki.

### ***Double Patenting***

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422

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F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-8 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 10/438,809. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is the Examiner's position that the selectively reflective layer in the claims of said copending application inherently has the instant sheet resistance. It is the Examiner's position that the selectively reflective layer used in the said copending application's examples at pages 4 to 7 has the instant sheet resistance.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### **Conclusion**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 9-220786 A is hereby made of record.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Diamond whose telephone number is 571-272-1338. The examiner can normally be reached on Monday through Friday, 5:30 a.m. to 2:00 p.m. ET.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Alan Diamond', with a stylized flourish at the end.

Alan Diamond  
Primary Examiner  
Art Unit 1753

Alan Diamond  
March 27, 2006